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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/901,097      | 07/10/2001  | Satoru Miyashita     | 101050.02           | 8398             |

25944 7590 10/24/2003

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EXAMINER

TARAZANO, DONALD LAWRENCE

ART UNIT PAPER NUMBER

1773

DATE MAILED: 10/24/2003

26

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/901,097

Applicant(s)

MIYASHITA ET AL.0101

Examiner

D. Lawrence Tarazano

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 20 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 25-46 and 54-78 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36-46 and 54-77 is/are allowed.
- 6) ☒ Claim(s) 25,26,29,35 and 78 is/are rejected.
- 7) ☒ Claim(s) 27,28 and 30-34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/101,083.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 15, 17.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: IDS's 22, 24.

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## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. Information Disclosure Statements (papers 15, 17, 22, 24) have been considered and signed copies of the relevant PTO-1449's are attached hereto.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 25, 26, 29, and 35 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicants' disclosure is only enabling for electro luminescent devices; the applicants' claims are much broader than the original disclosure. While the applicants have shown that their materials are semiconductors, there are semiconductor materials, which are not suitable for the production of electro luminescent devices, and these materials would be outside the scope of the original disclosure. The amended claims encompass materials that the applicants had never conceived of being used in their invention. Semiconductor materials are used in other applications such as transistors, capacitors, etc all of which are outside the scope of the original disclosure

4. Claims 25, 26, 29 and 35 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure, which is not enabling. An electro luminescent layer is critical or essential to the

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practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Claims 25, 26, 29, and 35 are directed generically to semiconductor materials. The applicants' original disclosure was directed to electro luminescent devices. There is no provision in the applicants' disclosure to produce any other devices. It is essential that the applicants produce an EL device.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 25, 26, 29, 35 and 78 are rejected under 35 U.S.C. 102(b) as being anticipate by Musho et al. (5,250,439) / (5,202,261).

6. Musho et al. teach that organic polymers such as polyalkylthiophenes (column 22, lines 49+) are made conducting by doping them with an appropriate oxidizer. These materials can be easily dissolved and processed by ink-jet methods. Suitable solvents include chloroform (column 31, lines 65+). A polymer layer is formed on a substrate by applying a solution (a mixture of organic solvent with polymer) and then drying it (column 32, lines 15+).

7. The applicant's claims are directed to "semiconductor" materials applied by ink-jet printing in which claim 78 lists polyalkylthiophenes as being a "semiconductor" material.

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8. While Musho et al. call their “polyalkylthiophenes” conducting polymers; these materials only become conducting once they have been doped. Therefore, they are semi-conducting materials upon application and formation of the layer.

9. Claim 25 states:

*A process for forming a pattern on a substrate by deposition of an organic material comprising the steps of:*

*Depositing a semiconducting organic material in a solve onto a substrate by ink-jet printing; and*

*Evaporating the solvent, whereby said organic material remains on the substrate.*

First the prior art uses the same method as claimed “ink-jet printing” using a “semiconducting organic material” which is dissolved in an organic solvent. Therefore, all the limitations in the body of the claim are met. Regarding the limitation in the preamble that the method is “a process for forming a pattern on a substrate”. The body of the claim does not require that a pattern be formed, only that the process could be used for this purpose. Since the prior art uses an ink-jet printing method a pattern could be formed.

Furthermore, even if the preamble was considered to “breath life and meaning” to the claimed process, the examiner notes that no particular pattern is required. The examiner takes the position that what is produced in Musho et al. is a “solid pattern” based on the way it was formed.

Finally, “Print” as defined by Webster’s New Word Dictionary is (3) Lettering or other impression made in ink from type by a printing press or other means.... (4) A design or picture transferred from a medium,.... “Printing” is the process...of producing printed material.... Thus the term “ink-jet printing inherently means that a design or “pattern” is formed, even if this is on a microscopic scale based on the way the ink is laid down.

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***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 25, 26, 29, 35 and 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Musho et al. (5,250,439).

12. Musho et al., as discussed above, teach that materials such as polyalkylthiophenes (column 22, lines 49+) are made conducting by doping the materials with an appropriate oxidizer. These materials can be processed by ink-jet methods along with a limited number of other methods.

13. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have applied the dissolved semiconducting polyalkylthiophenes taught by Musho et al. by ink jet methods, since this would be a convenient way of making a (solid) patterned layer.

***Response to Arguments***

The applicants' request for interference proceedings with Sturm et al. (paper12) is held in abeyance at this time to allow the outstanding issues to be resolved.

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The examiner has withdrawn the rejection of claims 28, 54-75 and 77 since the applicants have support for the polyvinylcarbazol materials claimed. The examiner has also withdrawn the rejections of claims 27, 30-34, 36-46, 76, and 78 because these claims are directed to the EL devices and/or the types of materials used by applicants in the production of them. The examiner has also withdrawn the rejections related to the use of the term "semiconductor" in certain instances where the term is used in conjunction with EL devices or the types of materials used by the applicants in the production of them. The applicants discuss band-gaps in their specification; this is a key feature of semiconductors. The examiner is convinced by the applicants' arguments. However, The examiner takes the position that claims 25, 26, 29, and 35 are broader the scope of the disclosure since they are merely directed to "semiconductor" materials. The term "semiconductor" is only appropriate within the scope of the original disclosure (i.e. specific materials or EL devices).

### *Conclusion*

Citation of relevant prior art: JP-02-187468 teaches inks comprising phthalocyanine metal complexes used for ink jet inks, (see CAS abstract). While the examiner is unable to determine if the materials are semi-conducting, they generically correspond to materials cited by the applicants (claim 78).

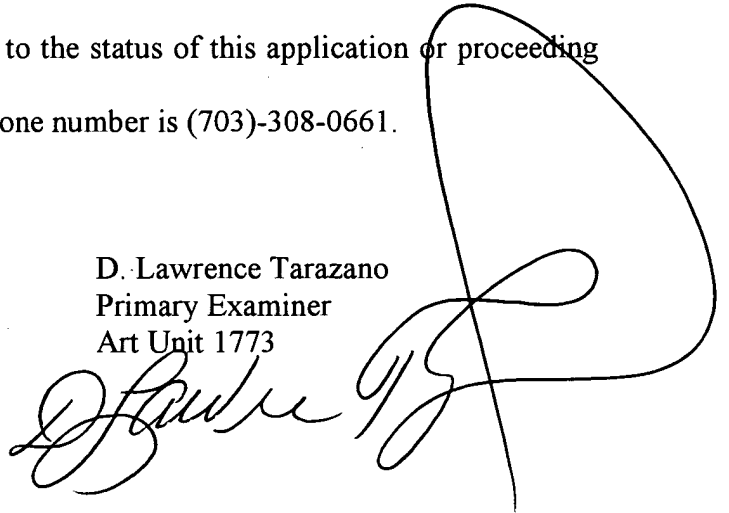
Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Lawrence Tarazano whose telephone number is (703)-308-2379. The examiner can normally be reached on 8:30 to 6:00 (off every other Friday).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J Thibodeau can be reached on (703)-309-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-872-9310 for regular communications and (703)-872-9311 for After Final communications.

5. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0661.

D. Lawrence Tarazano  
Primary Examiner  
Art Unit 1773

A large, stylized handwritten signature in black ink, likely belonging to D. Lawrence Tarazano, is written over the printed name and title.

dlt  
September 22, 2003

  
JACQUELINE M. STONE  
DIRECTOR  
TECHNOLOGY CENTER 1700